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Alba Mineral Resources plc

("Alba" or the "Company")

Testwork Results on Amitsoq Graphite Indicate Suitability for Lithium-Ion Batteries

Alba Mineral Resources plc (AIM: ALBA) is pleased to announce the results of the independent testwork programme undertaken on graphite material from the Company's high-grade Amitsoq graphite project in southern Greenland.

The testwork has confirmed that the graphite content of Amitsoq ore is very high, amongst the highest found in flake graphite deposits globally. It has also demonstrated that a >96% graphite concentrate can be produced and that many of the inherent characteristics exhibited by Amitsoq graphite are positive.

Accordingly, subject to certain follow-up testwork which is recommended, the testwork indicates the suitability of Amitsoq graphite as feed material for Lithium-Ion Batteries ("**LIBs**"), the fastest growing market for flake graphite globally.

Key Points

- Latest testwork by ProGraphite confirms Amitsoq graphite's very high carbon content - one of the highest grades for flake graphite deposits globally

- Carbon content of 97% achieved by flotation
  - Considered probable that for some fractions 98% carbon will be achievable by flotation

- Testwork shows Amitsoq graphite probably usable in most applications

- Based on the results obtained so far, recommendation for final treatment of concentrate would be to:
  - screen and sell the ≤150 micron material separately; and
  - use remaining -150 micron material (approx. 85% of total concentrate mass) for spherical graphite production (LIBs require spherical

graphite)

- Amitsoq graphite concentrate's potential suitability for LIBs is a significant finding
    - Market for LIBs is fastest growing market for flake graphite
    - Massive growth rates forecast for demand for LIBs in electric vehicles

George Frangeskides, Alba's Executive Chairman, commented:

"The successful completion of this testwork phase is a timely affirmation of the potential of the Amitsoq Project and reinforces our aim to drill the deposit later this year."

"The testwork has confirmed that a high-grade saleable concentrate can be produced from Amitsoq graphite. With the input of recognised graphite experts ProGraphite, we now see a path opening up for Amitsoq graphite to be used in the dynamic and ever-expanding global electric vehicle sector."

Introduction

Graphite ore from the Amitsoq deposit was supplied to the ProGraphite GmbH ("**ProGraphite**") laboratory in Germany. Approximately 10 kg was used by ProGraphite in the processing. The material was screened at 710 micron and the oversized material was ground in a rod mill until all material was below 710 microns. This material was the feed for the flotation testwork. It had Fixed Carbon grading 25.97%.

Flotation was conducted with a standard flotation cell. In order to protect the flakes, multiple milling and attritioning was applied. After the stage 7 flotation step, the carbon content of the concentrate reached 96.2% LOI. Most of the analytical testwork was carried out on this concentrate. However, a further 300 g of the concentrate was subjected to a further round of attritioning and flotation and, as a result, the carbon content reached 97.2% LOI.

NB: As graphite mineralogy and processing is a highly technical and specialised area of work, a general overview follows first, followed by a section containing greater technical detail. Please also note that a glossary of terms is set out at the end of this release.

Overview

This testwork programme has confirmed that Amitsoq graphite has a very high carbon content, one of the highest for flake graphite deposits globally.

The testwork has also confirmed the following:

(a) The ore crushes easily and comminution and flotation can also be easily achieved.

(b) Carbon content of 97% was reached by flotation, and it is considered quite probable that for at least some fractions 98% Carbon will be achievable by flotation. This is very high and would offer a significant advantage, as no purification would be needed to achieve that level.

(c) While the concentrate is quite fine, with 16.5% of the mass being larger than 150 microns, the carbon content in the different sieve fractions is evenly distributed and the content of volatiles is low in all fractions.

(d) The bulk density is in a normal range, whereas the specific surface area shows an increased value which might lead to an increased oxidation behaviour. The elemental distribution is quite normal for this type of ore, showing increased values for silica, iron and sulphur.

(e) Via XRD it was determined that the crystals forming the graphite flakes are quite small. The crystal lattice has a certain level of defects, however this is still in the normal range for flake graphite.

The conclusion from this round of testwork is that Amitsoq graphite can probably be used for most applications, perhaps excepting those where high oxidation-resistance is mandatory.

Based on the results obtained so far, ProGraphite's recommendation for the final treatment of the concentrate would be to screen the concentrate at 150 microns, with the flakes thereby obtained being sold separately at higher prices, and with the remaining product (approximately 85% of the concentrate mass) being used for spherical graphite production.

Further Technical Details

In respect of the analytical testwork carried out on the produced concentrate:

(a) Particle size distribution

The particle size distribution shows that the portion of flakes in the >150 micron size categories is 16.5%, which is quite low albeit in line with some Chinese or African deposits which are mined. It is expected that the process of repeated grinding and attritioning in order to attain a 96% concentrate has the effect of reducing the overall particle size.

However, it should be noted that the recovery of larger flake graphite was not an objective for this round of testwork. The flake size of the graphite used to produce LIB anode material is far less important, as the graphite is micronised to less than 30 microns prior to shaping and purification, this being the process for producing spherical graphite for LIBs.

The latest round of testwork has shown, however, that the carbon content of the concentrate is very homogenous for all fractions, which is a significant advantage, as all fractions are saleable with a high carbon content, allowing for higher prices.

(b) Volatiles

Volatiles are an important factor in graphite quality, as flake graphite is often used in hot environments, where a high portion of volatiles can be disturbing. The volatiles in the Amitsoq graphite concentrate vary between 0.38% and 0.71%, which are low values and thus a positive property of this graphite.

(c) Bulk density

The concentrate returned a bulk density of 480 g/l, which is a medium value for flake graphite with the given particle size distribution. It is comparable with most graphite from China.

(d) Specific Surface Analysis (SSA)

SSA is analysed with the BET method (Brunauer-Emett-Teller). The result obtained was a SSA of 7.5 m^2/g. Generally, the higher the BET value, the higher the porosity or surface inhomogeneity of the material. A high BET value (and high surface inhomogeneity) leads to high absorptivity of the material. The test result shows quite a high BET value for the flake graphite tested.

(e) Thermogravimetric Analysis (TGA)

TGA analyses the oxidation behaviour of graphite. Due to its heat-resistant properties, a major application for graphite is refractories, where high oxidation resistance is important. The TGA analysis shows that Amitsoq graphite has low volatiles and is very stable at temperatures up to over 400°C, which is very positive. When the temperature is further increased, the oxidation rate is quite high, which might be a result of the increased specific surface area.

(f) XRF analysis

XRF trace element analysis was conducted. The main elemental impurity in the concentrate was found to be silicon (Si), which is typical for flake graphite. The iron (Fe) and Sulphur (S) content are relatively high in the Amitsoq graphite concentrate. Other elements with an increased level are zinc (Zn) and potassium (K). The other elements are in a normal range for flake graphite of 96% carbon level.

(g) X-Ray Diffraction (XRD)

Full XRD analysis was conducted on a combined +100 mesh concentrate sample.

The graphitisation level shows the degree of lattice perfection of a sample in comparison with ideal graphite (value 1). Flake graphite is usually close to 1. The value returned for Amitsoq graphite was 0.98,

which constitutes a good result and is comparable to graphite which is mined in northern China.

The graphite from Amitsoq consists of quite small crystals, which have quite a high degree of lattice deformation.

Recommendations and Next Steps

The standard feed material for LIBs is termed "-195" grade, comprising a minimum of 80% below -100 mesh (or -150 microns) with a minimum 95% Fixed Carbon. Based on the results obtained so far, ProGraphite's recommendation for the final treatment of the concentrate would be as follows:

(1) the concentrate should be screened at 150 microns, with the flakes thereby obtained being sold separately at higher prices.
(2) The remaining material (-150 micron, approx. 85% of the concentrate mass) appears to be a typical -195 grade product, which could be used for spherical graphite production.

This finding that the concentrate from Amitsoq graphite appears to be suitable for LIBs is significant, as the market for LIBs is the fastest growing market for flake graphite, with massive growth rates forecast for the next decade due to the expected demand for LIBs in electric vehicles.

Alba will now commission ProGraphite to undertake the next phase of testwork, which is to assess the purification behaviour of the material. Given that the particle size distribution should be suitable for usage in LIBs, it should also be confirmed that it is possible to lower the impurities in the concentrate to typical values for LIBs.

About Graphite

Graphite is a non-toxic, chemically inert material. Additional characteristics of graphite are its high electric and thermic conductivity, excellent lubricity and exceptional thermal shock resistance. These characteristics mean that graphite is widely used in a variety of industrial applications. However, graphite is also an essential component in certain critical technological advances that are at the forefront of the drive to reduce global CO_2 emissions. In particular, graphite is the anode material in lithium-ion batteries which are used to power electric vehicles and domestic electricity storage systems.

Graphite and the Battery Metals Sector

To meet battery cell manufacturers' specifications for use as the anode in lithium-ion batteries, natural flake graphite must be purified and shaped into small spheres, at which point the material is referred to a High Purity Spherical Graphite ("HPSG"). After shaping, the natural flake graphite is purified by chemical leaching to remove impurities and raise the carbon content to above 99.95% C. HPSG is further processed by coating a single layer of carbon onto the spheres to produce spherical coated graphite. Spherical graphite commands much a higher price than selling a flake graphite concentrate.

Demand for graphite from the lithium-ion market alone is forecast to rise from nearly 200,000 tonnes per year currently in a 700,000 to 800,000 tonne overall graphite market to nearly 3 million tonnes a year in a 4 million tonne graphite market by 2030 *(Benchmark Mineral Intelligence, December 2020, as quoted in www.investingnews.com, 11 January 2021)*.

About ProGraphite

Headquartered in Germany, ProGraphite GmbH offers professional expertise in natural graphite and other carbon products, acquired during several decades of working in the graphite industry worldwide. ProGraphite's business activities include consulting, laboratory and mineralogical services. Additionally, due to its extensive experience in the graphite sector, ProGraphite supports customers and end users to evaluate the optimal graphite type and grade for their specific projects.

This announcement contains inside information for the purposes of Article 7 of EU Regulation 596/2014.

Forward Looking Statements

This announcement contains forward-looking statements relating to expected or anticipated future events and anticipated results that are forward-looking in nature and, as a result, are subject to certain risks and uncertainties, such as general economic, market and business conditions, competition for qualified staff, the regulatory process and actions, technical issues, new legislation, uncertainties resulting from potential delays or changes in plans, uncertainties resulting from working in a new political jurisdiction, uncertainties regarding the results of exploration, uncertainties regarding the timing and granting of prospecting rights, uncertainties regarding the timing and granting of regulatory and other third party consents and approvals, uncertainties regarding the Company's or any third party's ability to execute and implement future plans, and the occurrence of unexpected events.

Without prejudice to the generality of the foregoing, uncertainties also exist in connection with the ongoing Coronavirus (COVID-19) pandemic which may result in further lockdown measures and restrictions being imposed by Governments and other competent regulatory bodies and agencies from time to time in response to the pandemic, which measures and restrictions may prevent or inhibit the Company from executing its work activities according to the timelines set out in this announcement or indeed from executing its work activities at all. The Coronavirus (COVID-19) pandemic may also affect the Company's ability to execute its work activities due to personnel and contractors testing positive for COVID-19 or otherwise being required to self-isolate from time to time.

Actual results achieved may vary from the information provided herein as a result of numerous known and unknown risks and uncertainties and other factors.

Competent Person Declaration

The information in this release that relates to Exploration Results has been reviewed by Mr Mark Austin. Mr Austin is a member of SACNASP (Reg. No. 400235/06), Fellow of The Geological Society and Fellow of the Geological Society of South Africa. He has a B.Sc. Honours in Geology with 38 years' experience.

Mark Austin has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration targets, Exploration Results, Mineral Resources and Ore Reserves', also known as the JORC Code. The JORC code is a national reporting organisation that is aligned with CRIRSCO. Mr Austin consents to the inclusion in the announcement of the matters based on his information in the form and context in which they appear.

Glossary

Attrition or Attritioning*: the process of grinding ore in mineral processing.*

Comminution*: reduction of the particle size of materials. Crushing and grinding are the two primary comminution processes.*

Fixed Carbon (or Total Carbon)*: Carbon may be present in rocks in various forms including organic carbon, carbonates or graphitic carbon. Carbon in rocks may be reported as fixed or total carbon (organic carbon + carbon in carbonate minerals + carbon as graphite) or as total graphitic carbon (or TGC) (total carbon - (organic + carbonate carbon).*

Flotation*: in mineral processing, the method used to separate and concentrate ores by altering their surfaces to a hydrophobic condition-that is, so that the surfaces are repelled by water. A stream of air bubbles is then passed through the pulp. The bubbles attach to and levitate the hydrophobic particles, which collect in a froth layer which flows over the weir of the flotation cell.*

LOI*: Loss on ignition (LOI) is a test used in inorganic analytical chemistry and soil science, particularly in the analysis of minerals and the chemical makeup of soil. It consists of strongly heating ("igniting") a sample of the material at a specified temperature, allowing volatile substances to escape, until its mass ceases to change.*

Mesh*: mesh or mesh size refers to the mesh number (a US measurement standard) and its relationship to the size of the openings in a mesh and thus the size of particles that can pass through these openings. The mesh number is equal to the number of openings in one linear inch of screen. A 4-mesh screen means there are four square openings across one inch of screen. A 100-mesh screen has 100 openings per inch, and so on. As the number indicating the mesh size increases, the size of the openings and thus the size of particles captured by the screen decreases.*

Micronising*: micronisation is the process of reducing the average diameter of a solid material's particles. Traditional techniques for micronisation focus on mechanical*

means, such as milling and grinding. Modern techniques make use of the properties of supercritical fluids and manipulate the principles of solubility.

***Micron**: a micron is the measure of length most frequently used to describe tiny particle sizes. The term micron is shorthand for micrometre. The official symbol for the micron or micrometer is µm, sometimes simplified as um. A micron is defined as one-millionth of a metre, a little more than one twenty-five thousandth of an inch.*

***Milling**: a mill is a device that breaks solid materials into smaller pieces by grinding, crushing or cutting.*

***Spherical graphite**: used as the anode in lithium-ion batteries. Natural flake graphite is first purified and shaped into small spheres, at which point the material is referred to a High Purity Spherical Graphite ("HPSG"). After shaping, the natural flake graphite is purified by chemical leaching to remove impurities and raise the carbon content to above 99.95% C. HPSG is further processed by coating a single layer of carbon onto the spheres to produce spherical coated graphite. The spheronisation process decreases the surface area to allow more graphite into a smaller volume. This creates a smaller, denser, more efficient anode product for the battery. It also increases the rate at which the cell can be charged and discharged.*

***TGA (Thermogravimetric analysis or thermal gravimetric analysis)**: a method of thermal analysis in which the mass of a sample is measured over time as the temperature changes.*

***XRD (X-ray diffraction)**: a rapid analytical technique primarily used for phase identification of a crystalline material and can provide information on unit cell dimensions. The analysed material is finely ground, homogenized, and average bulk composition is determined. XRD determines the mineralogy.*

***XRF (x-ray fluorescence)**: an x-ray optical analysis technique which is based on spectroscopic detection of fluorescence of atoms which are excited by x-rays. It is an elemental analysis technique which is able to confirm the concentration of different elements in a sample. XRF analyses for chemistry.*

For further information, please contact:

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Alba's Project and Investment Portfolio

Project (commodity)	Location	Ownership
Mining Projects		

Amitsoq (graphite)	Greenland	90%
Clogau (gold)	Wales	90%
Gwynfynydd (gold)	Wales	100%
Inglefield (copper, cobalt, gold)	Greenland	100%
Limerick (zinc-lead)	Ireland	100%
Melville Bay (iron ore)	Greenland	51%
TBS (ilmenite)	Greenland	100%
Oil & Gas Investments		
Brockham (oil)	England	5%
Horse Hill (oil)	England	11.765%

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